

**Notice of Allowability**

Application No.

10/767,774

Examiner

Brian Young

Applicant(s)

MILLER, KEVIN LEE

Art Unit

2819

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 2/10/05.
2. ☒ The allowed claim(s) is/are 1-14 and 16.
3. ☒ The drawings filed on 30 January 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

1. Claims 1-4 and 16 are allowed.
2. The following is an examiner's statement of reasons for allowance: a sequence mapping circuit and method generates a pulsed output. Over time, the mapping circuit generates pulses with a substantially identical average centroid for each of the possible output waveforms. For at least some of the output waveforms, two or more sets of pulses are provided representing the same waveform but having different centroids. The output is alternated among the available sets of pulses to maintain the desired average centroid over time. Shuffling of the output among the available pulses representing a given waveform may be randomly determined, or the pulses used may be tracked and the output pulses sequentially alternated among the available output pulses. These features have not been shown in the prior art of record.
3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Abbey discloses a multi-bit, monotonic quantizer and linearized delta-sigma modulator based analog-to-digital converter (ADC) modulator and digital-to-analog converter (DAC) modulators. A folded monotonic quantizer provides tri-state to bi-state mapping such that three state bits may be utilized but are not required to be transported and stored. The multi-bit ADC and DAC modulators provide linearized, spurious free outputs that require less power and utilize lower oversampling ratios to provide wider bandwidths at high-performance, spurious-free dynamic ranges, making them ideally suitable for use in direct sampling receivers and direct digital transmitters.

Tani et al. disclose a D/A conversion apparatus that can minimize the increase in the amount of circuitry if the number of output levels is increased, a digital input value, input for each sampling clock, is first converted by a digital filter and a noise shaper into a word length limited digital signal with a high sampling frequency. The output of the noise shaper is mapped by a decoder to  $n$   $m$ -valued signals a "1" at a time in a cyclic fashion progressing from one signal to the next so that the sum of the  $n$   $m$ -valued signals becomes equal to the digital input value; thereafter, the  $n$   $m$ -valued signals are converted by  $n$   $m$ -valued D/A converters into corresponding analog signals which are then summed together by an analog adder to produce an analog output signal. The term "cyclic" means not only that one digital input value is mapped to the  $n$   $m$ -valued signals a "1" at a time in a cyclic fashion progressing from one signal to the next, but also that the mapping of the present digital input value to the  $n$   $m$ -valued signals is performed starting with the  $m$ -valued signal that immediately follows the  $m$ -valued signal to which the preceding digital input value was last mapped.

Louagie et al disclose a method for selecting a sequence of cells of current sources inside a cell matrix structure of a digital-analog converter and also to the corresponding converter. Symmetries are used with regard to the centre (C) of a rectangular or preferably square matrix structure, with regard to a symmetry point (S) located at a quarter of the length of a diagonal (D1) from the centre and with regard to one of the two mean perpendiculars (M1) of the structure for selecting the mapping areas (1, 2, . . . ) for the consecutive cells.


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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Young whose telephone number is 571-272-1816.

The examiner can normally be reached on Mon-Fri 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Brian Young  
Primary Examiner  
Art Unit 2819

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